

### REMARKS

Applicants have chosen to use the legends permitted under the rules of practice instead of reference numbers since, in this case, so many blocks are used and are thus believed easier to follow with legends.

With applicants presently abroad in the far east for an extended time, counsel has as yet been unable to provide copies of relevant articles cited in the specification (--the Office, of course, having internet access to such), but hopes to locate copies on applicants' return.

Turning to the claim rejections, claims 1 to 6, 10 to 17, 19 to 26 and 30 to 33 have been rejected under 35 U.S.C. 102 as anticipated by the patent to *Chen et al* ('347); and claims 7 to 9 and 27 to 29 have been rejected under 35 U.S.C. 103(a) as the "obvious" incorporation into *Chen et al* of quantizer parity concepts of the patent to *Sandford, II et al*.

It is first in order to review what the patent *Chen et al* actually teaches and what it does not.

#### The Patent to *Chen et al* ('347) Does Not Anticipate Applicant's Discovery or Results

As the Office correctly states at the top of page 4 of its action herein,

*"Chen et al* ('347) discloses a method for embedding watermark signals into a digital media file".

Of course, *Chen et al*, however, was hardly the first to provide "watermarking"; nor did they invent the concept of transforming into encoding cosine, Fourier or other coefficient representations; nor did they invent low bit modulation quantization; nor did they "invent the use of a steganographic process for watermarking".

And neither did applicants invent any of these concepts.

The reference, however, combined these techniques in a novel way to achieve improved "watermarking".

While the applicants can also use "watermarking", their invention, however, has nothing whatever to do with "watermarking", and indeed need not even use "watermarking".

The applicants, moreover, use a very different combination of the above and other techniques than *Chen et al*, and specifically incorporation a least significant bit parity encoding not even hinted at, let alone disclosed, in the reference, as later more fully detailed.

As explained commencing at the bottom of page 1 of applicants' specification, "watermarking", which the patent to *Chen et al* describes as for such purposes as preventing copyright infringement by labeling, or providing authentication as with an embedded "8-bit watermark identification", has, moreover, been

"limited to fairly low-bit rates".

Applicants, on the other hand, are concerned not with embedding such low bit rate "watermarking" information, but with enabling for the first time the embedding of

"entire computer programs, multimedia annotations, or lengthy supplemental communications." (top of page 7 of applicants' specification).

"more than 3000 bits of data per second...readily embedded in an MP3 audio file encoded at a bit rate of 128,000 bits/sec";

as distinguished from

"watermarking techniques...capable of embedding data at relatively low bit rates; for example, about 22 binary digits (bits) of data per second of audio". (pages 14 and 15).

When, indeed, applicants do choose also to embed "watermarking", the data therefor is not even embedded as in the system of the *Chen et al* patent, but applicants'

"watermarking process (must be) embedded prior to the data embedding by the encoding process". (applicants' page 14, Figure 4).

Applicants discovered the they could embed such large amounts of supplemental data without deleterious degradation through incorporating "LSB parity encoding...(which) allows more choice regarding the coefficients to be modified " (page 16) and wherein "the parity of the coefficients can be computed by adding them together." (page 17).

Enough has probably been explained to demonstrate that *Chen et al* have not anticipated applicants' discovery or obtained their novel results.

Claims 1 to 6, 10 to 17, 19 to 26 and 30 to 33, however, have been rejected, as before mentioned, under 35 U.S.C. 102, apparently because, in the Office view, they are so broadly worded as to be readable also on the different configuration of *Chen et al.*

Claims 7 to 9 and 27 to 29

Claims 7 to 9 and 27 to 29, on the other hand, recite the incorporation of applicants' type of LSB parity encoding which the Office concedes (page 9) "*Chen et al.* ('347) does not expressly disclose".

Believing, however, that applicants' type of such LSB parity encoding is actually suggested in "a related method of compression embedding" disclosed in the patent to *Sandford et al.*, the Office has held that it would have been "obvious" to use such in the *Chen et al.* system, and has accordingly rejected the above claims under 35 U.S.C. 103(a).

Altogether apart from the question of whether it really would have been "obvious" without the benefit of the hindsight of applicants' teachings even to try such incorporation, the Office is entirely mistaken in its view that *Sandford et al.* teaches applicants' before-mentioned type of parity of the coefficients added together (page 17), which applicants have termed "parity of the least significant bits of a group of said coefficients" in the above claims and in the specification.

*Sandford et al.*, indeed, use the term "quantizer parity" only to describe a single coefficient output from a quantizer—i.e. only "least-significant bit embedding" which cannot produce applicants' results. Neither *Sandford et al.* nor the prior art cited therein teaches, discusses, or anticipates any techniques for extending the embedding of information to multiple or "groups of coefficients" as disclosed and as is claimed in claims 7 to 9 and 27 to 29, and has been found by applicants to be technically required to produce applicants' novel results as earlier discussed and as taught in applicants' specification (pages 16, 17).

No possible combination of the teachings of these patents; "obvious" or otherwise, thus either anticipates applicants' invention, meets the express limitations of the above claims, or obtains the results of applicants' invention.

Reconsideration and allowance of claims 7-9 and 27-29 accordingly appear to be in order and are thus respectfully requested. (Dependent claims 7 and 27 have been rewritten into independent form).

Claims 3-6 and 10-20 have been amended to depend from allowable claim 7; and claims 22-26 and 30, to depend from allowable claim 27, so that their allowance also appears appropriate and is also respectfully requested.

Newly presented claim 31 embodies claim 1 combined with the novel computed parity of the least-significant bits of "a group of said coefficients", as in claim 7, and is thus allowable. Claims 32 and 33 depend therefrom, specifying the adding of said bits of the group of coefficients and the further applying of watermarking digital data, respectively — the latter, not as in the *Chen et al*, but rather "prior to the embedding of said supplemental data".

Claims 1, 2 and 21 have been deleted without prejudice in view of the clear allowability of the above claims, which are believed adequately to protect applicants' preferred embodiments.

Sheets of handwritten claim changes are annexed as also required.

Applicants concur with the Office as to the lack of anticipation of their invention and claims by any of the patents to Moskowitz et al, Lee and Won, Lee and Chen, Wu et al and Cedric et al.

Any costs required by this filing, include for time extensions, petition for which is hereby made, may be charged to Deposit Account No. 18-1425 of the undersigned attorneys.

Very respectfully,

RINES AND RINES

By 

Robert H. Rines,  
Attorney for Applicant  
Reg. No. 15,932

Date: December 13, 2001  
Rines and Rines  
81 North State Street  
Concord, N.H. 03301  
Reg. 16,118  
Tel. (603) 228-0121